

## A review of the family Dryomyzidae (Diptera) of Russia

### Обзор двукрылых семейства Dryomyzidae (Diptera) фауны России

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КЛЮЧЕВЫЕ СЛОВА: Diptera, *Dryomyzidae*, Russia, фауна, новые данные по распространению.

**ABSTRACT.** Flies of the family Dryomyzidae of Russia, which includes 10 species from five genera, are reviewed. Generic and species diagnosis and key for determination of genera and species are given, and data on distributions are summarized. *Dryomyza badia* Kurahashi, 1981 is excluded from the list of species registered on the territory of Russia

**РЕЗЮМЕ.** Дан обзор двукрылых семейства Dryomyzidae фауны России, включающего 10 видов из пяти родов. Приведены диагнозы и определительные таблицы родов и видов фауны России, а также суммированы данные по распространению видов на территории России. Вид *Dryomyza badia* Kurahashi, 1981 исключен из списка видов, отмеченных на территории России.

#### Introduction

The Dryomyzidae is a small family of acalyptrate flies. It is restricted to the Holarctic and Oriental Regions and comprises about 23 known species in six genera: *Dryomyza* Fallén, 1820, *Dryope* Robineau-Desvoidy, 1830, *Oedoparena* Curran, 1934, *Paradryomyza* Ozerov, 1987, *Pseudoneuroctena* Ozerov, 1987, and *Steyskalomyza* Kurahashi, 1982 (Mathis, Sueyoshi, 2011; Ozerov, 2017).

The fauna of Russia includes 10 species from five genera: *Dryomyza* (4 species), *Dryope* (2 species), *Paradryomyza* (2 species), *Pseudoneuroctena* (1 species), and *Oedoparena* (1 species) [Ozerov, 1987, 1999; Ozerov, Krivosheina, 2021].

During the preparation of this article the material from the collections of the Zoological Institute, St.-Petersburg (ZISP) and Zoological Museum, Moscow Lomonosov State University (ZMUM) was redetermined. It was discovered that the male specimen from Sakhalin Island, previously determined as *Neuroctena badia* (Kurahashi, 1981) [Ozerov, 1987: 40] is conspecific with *Dryomyza anilis* (Fallén, 1820). Thus we exclude *Dryomyza badia* Kurahashi, 1981 from the list of species registered on the territory of Russia.

Adult Dryomyzidae are common in wooded areas and are collected mainly in humid habitats on different decaying substrates such as carrion, human excrements, fungi, algae, dung, and exuded tree sap. Dryomyzidae larvae are mainly saprophagous and females usually lay eggs on the rotting food source [Ferrari, 1987; Ozerov, 1999; Iwasa, 2002; Mathis, Sueyoshi, 2011].

The terminology used in the generic and species descriptions follows McAlpine [1981], Cumming & Wood [2009], and Stuckenberg [1999].

#### Taxonomic part

##### Family Dryomyzidae

Dryomyzinae Schiner, 1862: 148 [as the subfamily Dryomyzinae, family Muscidae]. Type genus: *Dryomyza* Fallén, 1820.

Medium-sized to large flies (Fig. 1), body 4–18 mm in length, strong bristled to quite hairy, and yellow to brown or dark grey in colour.



Fig. 1. *Dryomyza anilis* Fallén, ♀.  
Рис. 1. *Dryomyza anilis* Fallén, ♀.

*Head* slightly higher than long (Figs 2, 3); eyes roundish or oval, moderately large, separated by broad frontal vitta in both sexes. Gena high (ca. 1/2–2/3 eye height to equal height of eye). Face uniformly sclerotized, without fascial carina developed, shallowly convex in profile. Antenna of moderate size, oriented ventrally; scape and pedicel small; postpedicel circular to elongated oval, with bare to plumose arista (Figs 2–5). Clypeus conspicuous, sometimes protruding (Figs 2, 3). Palpus and proboscis well-developed, but neither very large nor long. Chaetotaxy: 1 inner and 0–1 outer vertical, 1–3 laterocline fronto-orbital, 1 ocellar, and 1 postocellar setae present, the latter parallel or slightly divergent; no vibrissae.

*Thorax* somewhat longer than wide. Scutum moderately convex, with postpronotal lobes distinct. Chaetotaxy: 1 proepisternal (usually long), 0 proepimeral, usually several dorsal katapisternal (in *Oedoparena* Curran katapisternum with long fine hairs only), 0 anepisternal, 0–1 postpronotal, 1–2 notopleural, 1+1 supra-alar, 1–7 dorsocentral, 2 postalar setae present; acrostichal setae either absent or with a prescutellar pair; scutellum with 2–3 pairs of scutellar setae (Figs 8, 9). Lower margin of posterior spiracle without setae. Postmetacoxal bridge absent.

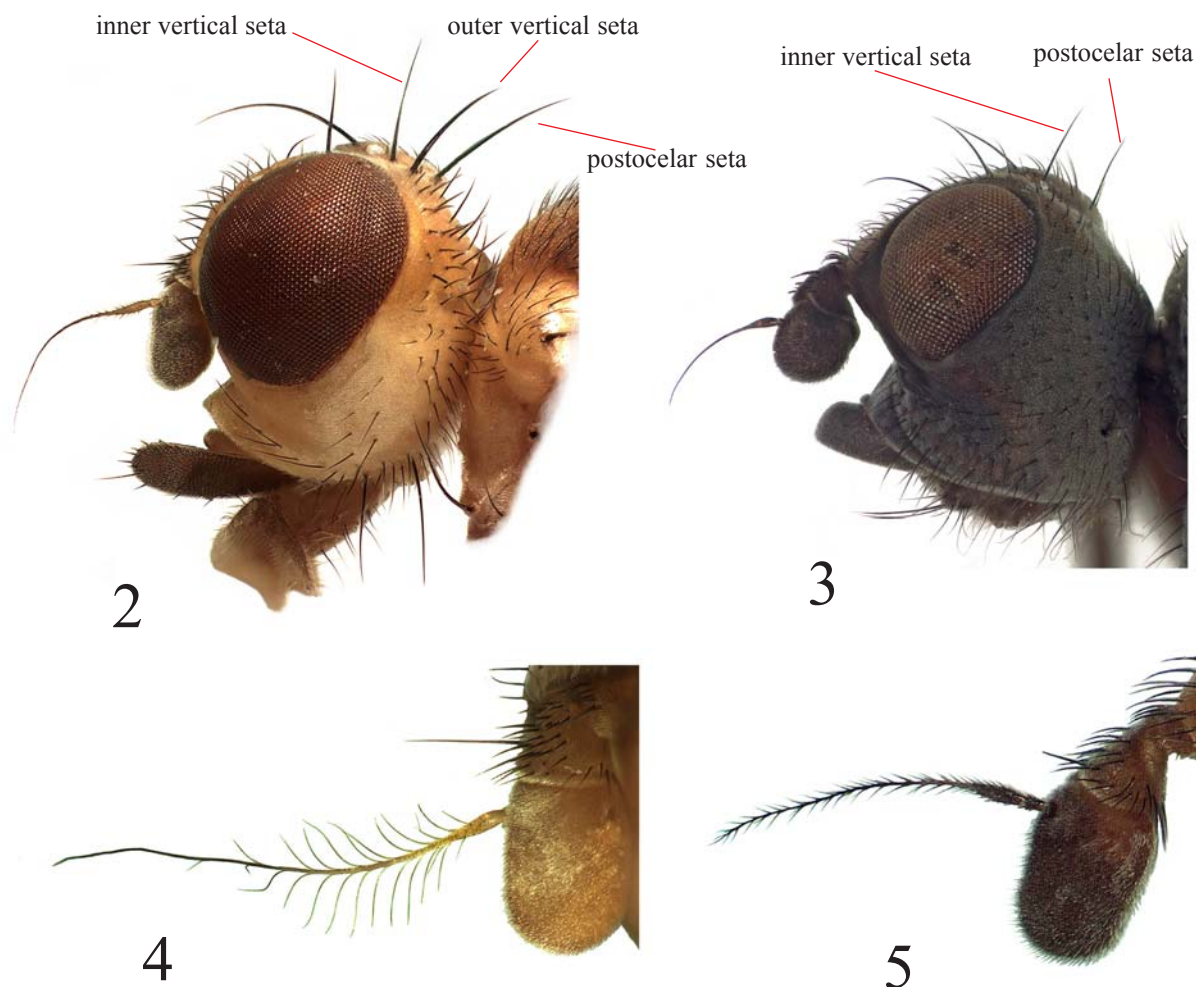
*Legs* slender to rather robust, not differ in both sexes; all tibiae with preapical dorsal seta; in *Paradryomyza* hind femur bearing two rows of spinules apically on ventral surface (Figs 10, 11).

*Wing* extending beyond apex of abdomen, hyaline to lightly infusate or tawny; crossveins sometimes clouded (Fig. 6). Costal vein unbroken; subcostal vein complete; vein  $R_1$  bare dorsally or setose along all length or at least on basal half; vein  $A_1+CuA_2$  evident to wing margin; crossvein  $bm-cu$  always present and distinctly apical of vein  $CuA_2$ .

*Abdomen* ovoid, usually quite densely hairy, especially in male. Abdominal spiracles 2 to 5 located in tergites or membrane (*Oedoparena minor* Suwa, 1981). Female abdominal tergites 6 and 7 of *Paradryomyza* spinulose (Fig. 12). Male genitalia: surstylus simple; epandrium with a pair of usually long projections (ventromedial processes) (Figs 13–33); distiphallus of aedeagus angulate, dorsal or ventral surface usually conspicuously setulose (Figs 34–43). Female with 3 small spermathecae.

#### KEY TO GENERA OF DRYOMYZIDAE

1. Proepisternum, except seta near lower margin, densely setose, setae fine. Head with outer vertical setae absent or reduced. Scutum with 5–7 dorsocentral setae, presutural dorsocentral setae present; postpronotal setae lacking. Dark grey in ground color of body ..... *Oedoparena* Curran
- Proepisternum with one seta near lower margin only. Head with outer vertical setae present, well developed. Scutum with 2–3 dorsocentral setae, presutural dorsocentral setae absent; 1 strong postpronotal seta present. Yellow to brown in ground color of body ..... 2



Figs 2–5. *Dryomyza caucasica* (Ozerov) (2), *Oedoparena minor* Suwa (3), *Dryomyza formosa* (Wiedemann) (4), *Paradryomyza setosa* (Bigot) (5): 2, 3 — head, lateral view; 4, 5 — postpedicel and arista, lateral view. 5 — after Ozerov, 2017, fig. 3.

Рис. 2–5. *Dryomyza caucasica* (Ozerov) (2), *Oedoparena minor* Suwa (3), *Dryomyza formosa* (Wiedemann) (4), *Paradryomyza setosa* (Bigot) (5): 2, 3 — голова, сбоку; 4, 5 — постпедицель и ариста, сбоку. 5 — по Ozerov, 2017, fig. 3.

2. Scutum with prescutellar acrostichal setae absent. Hind femur bearing two rows of spinules apically on ventral surface (Figs 10, 11). Female abdominal tergites 6 and 7 spinulose (Fig. 12) ..... *Paradryomyza* Ozerov
- Scutum with prescutellar acrostichal setae present. Hind femur and female abdominal tergites 6 and 7 lacking spinules ..... 3
3. Vein  $R_1$  setose dorsally completely (Fig. 6) ..... *Dryomyza* Fallén
- At least basal half or all of vein  $R_1$  without distinct row of setae ..... 4
4. Postcranium covered with light hairs and black setulae. 2 pairs of dorsocentral setae present ..... *Dryope* Robineau-Desvoidy
- Postcranium without light hairs, covered with black setulae only. 3 pairs of dorsocentral setae present ..... *Pseudoneuroctena* Ozerov

#### Genus *Dryomyza* Fallén, 1820

*Dryomyza* Fallén, 1820: 15. Gender: feminine. Type species: *Dryomyza anilis* Fallén, by designation of Zetterstedt, 1846.

*Neuroctena* Rondani, 1868: 56. Gender: feminine. Type species: *Dryomyza anilis* Fallén, by monotypy.

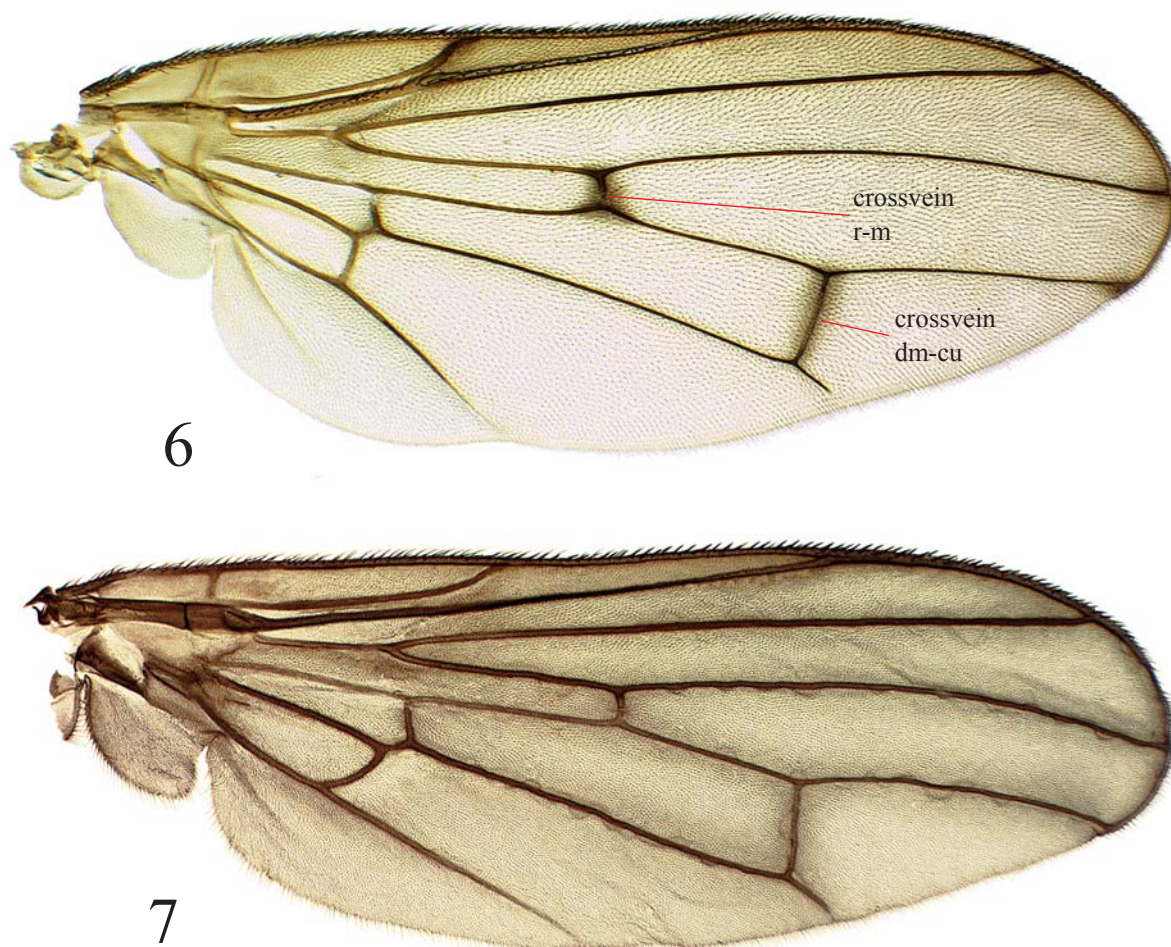
*Stenodryomyza* Hendel, 1924: 214 (as subgenus of *Neuroctena*). Gender: feminine. Type species: *Scatophaga formosa* Wiedemann, by original designation.

**DIAGNOSIS.** Head with a pair of well developed outer vertical setae. Arista bare on apical part and short haired or plumose in basal 1/4 or 1/2 (Figs 2, 4). Scutum with 2 pairs of dorsocentral setae; acrostichal setae present. Vein  $R_1$  setose on dorsal surface on whole length. Scutellum with two pairs of setae (Fig. 8). Surstylus and ventromedial process rod-shaped (Figs 13–16, 23–26).

Four species of this genus are recorded in Russia [Stackelberg, 1958, 1970; Petrova, 1968; Ozerov, 1987, 1999].

#### KEY TO THE SPECIES OF THE GENUS *DRYOMYZA*

1. Crossveins r-m and dm-cu with dark rims (Fig. 6) ..... 2
- Wing hyaline and slightly tinged with pale brown, lacking dark markings ..... 3
2. Postcranium covered with black and yellow setulae. Anepisternum bare, shining. Genitalia as in Figs 16, 26, 37; ventromedial process shorter than surstylus (Figs 16, 26) ..... *D. formosa* Wiedemann



Figs 6–7. Wing of *Dryomyza anilis* Fallén (6) and *Oedoparena minor* Suwa (7). 7 — after Ozerov & Krivosheina, 2021, fig. 4.

Рис. 6–7. Крыло *Dryomyza anilis* Fallén (6) и *Oedoparena minor* Suwa (7). 7 — по Ozerov & Krivosheina, 2021, fig. 8.

- Postcranium covered with black setulae only. Anepisternum entirely covered with whitish microtrichia. Genitalia as in Figs 13, 23, 34; ventromedial process longer than surstylus (Figs 13, 23) ..... *D. anilis* Fallén
- 3. Palpus blackish on apical part or completely (Fig. 2). Anepisternum microtomentose on all surface, without black setulae. Genitalia as in Figs 14, 24, 35 ..... *D. caucasica* (Ozerov)
- Palpus yellow completely. Anepisternum microtomentose on posterior half and shining anteriorly, covered with rare black setulae. Genitalia as in Figs 15, 25, 36 ..... *D. ealcarata* Kurahashi

*Dryomyza anilis* Fallén, 1820  
Figs 1, 6, 8, 13, 23, 34.

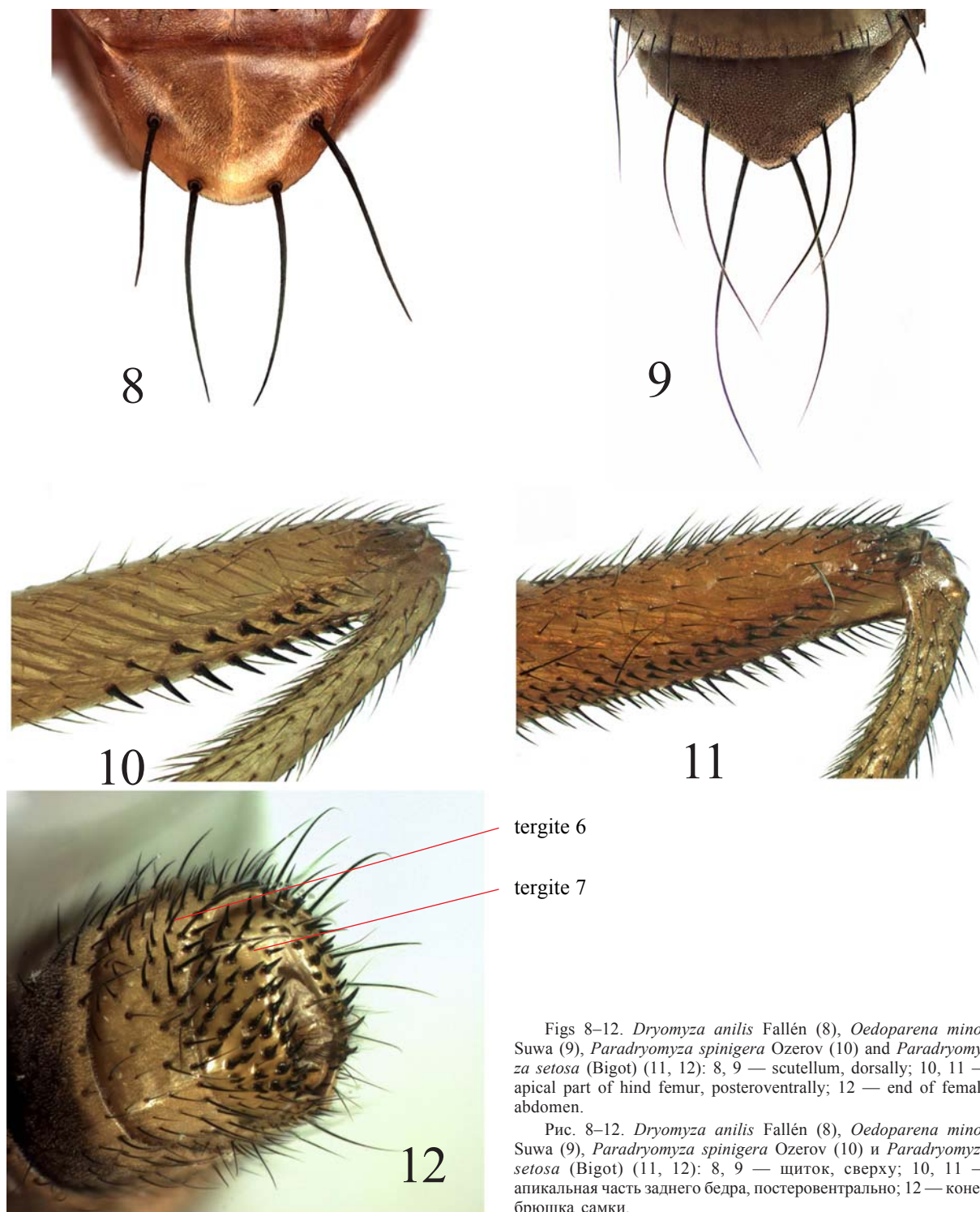
*anilis* Fallén, 1820: 16 (*Dryomyza*). Type-locality: not given (?Sweden).

*liturata* Robineau-Desvoidy, 1830: 619 (*Dryope*). Type-locality: not given (?France).

*melanacme* Kurahashi, 1981: 441 (*Dryomyza*). Type-locality: Mt. Hakusan (Honshu Island, Japan).

“*anilis*” error for *anilis* Fallén [e.g. Sóos, 1984: 153; Kurahashi, 1981: 437; Ozerov, 1987: 40, 1998: 350–352; 1999a: 555; 2009: 371]

MATERIAL EXAMINED. **Altai:** Lake Teletskoe, (51.796°N, 87.274°E), 21–22.VII.1970, V. Sychevskaya (1 ♂, 4 ♀♀, ZMUM); Ust-Sema env., (51.6°N 85.8°E), 21–26.VI.2016, N. Vikhrev (1 ♀, ZMUM); **Amur Oblast:** 5–6 km above of Ekimchan (53.085°N 132.974°E), 31.VIII.2006, A.B. Ryvkin (2 ♂♂, 1 ♀, ZMUM); Zeya Town (53.748°N 127.261°E), 10–19.VI. and 19.VII.1978, 10 and 12.VIII.1979, A. Shatalkin (2 ♂♂, 5 ♀♀, ZMUM); Zeysky Nature Reserve, cordon “34 km” (53.989°N 127.073°E) and cordon “52 km” (54.087°N 126.871°E), 20, 24 and 29.VI., 8 and 24.VII., 1, 6 and 19.VIII.1981, A. Ozerov, O. Gorbunov (6 ♂♂, 8 ♀♀, ZMUM); **Arkhangelsk Oblast:** Arkhangelsk (64.547°N 40.600°E), 4.VIII.2011, D. Gavryushin (1 ♀, ZMUM); Nar’yan-Mar (67.631°N, 52.985°E), 7 and 8.VII.2008, A.L. Ozerov (1 ♂, 2 ♀♀, ZMUM); Solvychevsk (61.342°N 46.913°E), 12–13.VIII.2010, D. Gavryushin (4 ♂♂, ZMUM); **Buryatia:** Kyren (51.7°N 102.1°E), 16–19.VI.2021, N. Vikhrev (1 ♀, ZMUM); **Chelyabinsk Oblast:** Taganay (55.277°N 59.795°E), 18–24.VII.2008, K. Tomkovich (2 ♂♂, ZMUM); **Jewish Autonomus Oblast:** Malyy Khingan ridge, River Dichun (48.545°N 130.760°E), 2 and 9.VIII.1980, A. Ozerov (1 ♂, 1 ♀, ZMUM); Pashkovo (48.889°N 130.651°E), 23.VI.1980, A. Ozerov (2 ♀♀, ZMUM); **Kaluga Oblast:** Tarusa (54.725°N 37.176°E), 10.IX.1981, L. Zimina (1 ♀, ZMUM); **Kamchatka Krai:** Kichiga (59.9°N 163.5°E), 22.VII.1987, Smetanin (2 ♂♂, 8 ♀♀, ZMUM); **Karelia:** Primorsky env. (66.552°N 33.100°E), 2.VII.2010, A.L. Ozerov (1 ♀, ZMUM); **Khabarovsk Krai:** Khabarovsk env. (48.6°N 135.1°E), 2– 6 and 13.VI.2014, N. Vikhrev (2 ♀♀, ZMUM); River Bureika (52.2°N



Figs 8–12. *Dryomyza anilis* Fallén (8), *Oedoparena minor* Suwa (9), *Paradyomyza spinigera* Ozerov (10) and *Paradyomyza setosa* (Bigot) (11, 12): 8, 9 — scutellum, dorsally; 10, 11 — apical part of hind femur, posteroventrally; 12 — end of female abdomen.

Рис. 8–12. *Dryomyza anilis* Fallén (8), *Oedoparena minor* Suwa (9), *Paradyomyza spinigera* Ozerov (10) и *Paradyomyza setosa* (Bigot) (11, 12): 8, 9 — щиток, сверху; 10, 11 — апикальная часть заднего бедра, постероventрально; 12 — конец брюшка самки.

134.4°E), 26.VII.2009, P. Budilov (2 ♂♂, 1 ♀, ZMUM); **Khakassia**: Kubayka (52.33°N 89.82°E), 620 m, 10–13.VII.2017, N. Vikhrev (2 ♀♀, ZMUM); **Komi**: Vorkuta (67.492°N 64.072°E), 19–25.VII.2010, N. Vikhrev (1 ♀, ZMUM); Vorkuta (67.492°N 64.072°E), 19–25.VII.2010, N. Vikhrev (1 ♀, ZMUM); **Krasnoyarsk Krai**: “Stolby” (55.962°N 92.750°E), 30.VII.–1.VIII.2009, 19.VI.2011, K. Tomkovich (1 ♂, ZMUM); Kryuchkovo Station (56.096°N 92.109°E), 14–23 and 16–18.VII.2009, K. Tomkovich

(2 ♂♂, 2 ♀♀, ZMUM); **Kursk Oblast**: Streletskaya steppe (51.579°N 36.087°E), 20.VI. and 7.IX.2007, N. Vikhrev (2 ♀♀, ZMUM); Central Tsernozemy Nature Reserve (51.565°N 36.084°E), 23.VI.2008, Galinskaya (1 ♀, ZMUM); **Leningrad Oblast**: Gatshina (59.56°N 30.13°E), 3.VIII.1958, V. Sychevskaya (3 ♂♂, 3 ♀♀, ZISP); **Magadan Oblast**: Koni peninsula, Plosky Cape (59.161°N 151.643°E), 18 and 21.VIII.2017, 5, 13 and 15.VII.2018, N. Tridrich (6 ♂♂, 3 ♀♀, ZMUM); Nagaev Bay (59.53°N 150.76°E),

20–22.VII.2014, N. Vikhrev (1 ♀, ZMUM); River Donyshko (60.41°N 151.52°E), 17.VII.2014, N. Vikhrev (1 ♂, ZMUM); Sokol env. (59.92°N 150.71°E), 11–19.VII.2014, N. Vikhrev (4 ♂♂, 1 ♀, ZMUM); **Mordovia**: Mordovia Nature Reserve (54.708°N 43.213°E), 10.VII.2020, M. Esin (1 ♂, ZMUM); **Moscow and Moscow Oblast**: 20 km WSW of Volokolamsk (55.983°N 35.616°E), 9.VIII.1996, 1.VII.1999, A.L. Ozerov (1 ♂, 1 ♀, ZMUM); Abramtsevo (56.230°N 37.956°E), 14.VII., 11–18.VIII.1957, 25.VI., 26.VII., 7 and 9.VIII.1958, E.S. Smirnov (3 ♂♂, 12 ♀♀, ZMUM); Burtsevo env. (55.976°N 35.590°E), 31.VII.2005, A.L. Ozerov (1 ♂, ZMUM); Chashnikovo (56.034°N 37.173°E), 6.VII.1977, A. Shatalkin (1 ♂, ZMUM); Dmitrov env. (56.316°N 37.725°E), 9.VI., 28.VII., 25.VIII. and 14 IX.2006, 2.VII.2007, 20.VI.2008, N. Vikhrev (4 ♂♂, 2 ♀♀, ZMUM); Glotaev (55.1645°N 37.810°E), 25.VII.1988, L. Zimina (3 ♂♂, ZMUM); Golitsyno (55.649°N 37.011°E), 3.VII.1977, A. Shatalkin (1 ♀, ZMUM); Khimki (55.897°N 37.374°E), 23.VIII.1973, (1 ♂, 1 ♀, ZMUM); Kuntsevo (55.720°N 37.473°E), 2.IX.1964, 28.VII. and 1.VIII.1966, 11.VIII.1968, Zhelokhovtsev (1 ♂, 4 ♀♀, ZMUM); same place, 5.VI.1982, A. Ozerov (1 ♀, ZMUM); Lake Glubokoe (55.750°N 36.510°E), 15–16.VIII.1980, V. Kovalev (1 ♀, ZMUM); Naro-Fominsk env. (55.357°N 36.736°E), 15.VIII.2006, 5.VI.2007, D. Gavryushin (2 ♂♂, ZMUM); Nikolina Gora (55.733°N 37.041°E), 1.VIII.1976, Zhelokhovtsev (1 ♀, ZMUM); Petrovsko-Razumovskoe (55.839°N 37.569°E), IV.1902, VII.1904, VII.1905, M. Zolotarev (1 ♂, 5 ♀♀, ZMUM); same place, 16.VII.1924, E. Smirnov (1 ♂, ZMUM); Pushkino env. (ca. 55.998°N 37.829°E), 1961, V. Kovalev (1 ♀, ZMUM); Vel'yaminovo env. (55.214°N 37.912°E), 23–24.VI.1990, V. Antropov (1 ♀, ZMUM); Yasenevo (55.607°N 37.538°E), 23–24.VI.1990, V. Antropov (4 ♂♂, 2 ♀♀, ZMUM); Zvenigorod env. (55.700°N 36.722°E), 18.VII.1954, L. Zimina (1 ♀, ZMUM); same place, 16.VI.1951, N. Kondakov (1 ♂, ZMUM); **Murmansk Oblast**: Murmansk env., Lake Sredneye (68.978°N 33.151°E), 18.VII.2011, D. Gavryushin (1 ♂, 1 ♀, ZMUM); **Nizhegorod Oblast**: Dzerzhinsk (56.21°N 43.62°E), 17.VIII.2009, N. Vikhrev (1 ♂, ZMUM); **Primorsky Krai**: 40 km SO of Ussuriysk [=Kamenushka] (43.634°N 132.222°E), 13.VIII.1983, 2 and 12.VII., 24 and 26.VIII.1984, 19.VI.1985, 4.VIII.1987, A. Ozerov (4 ♂♂, 4 ♀♀, ZMUM); same place, 14 and 30.VI.1984, A. Shatalkin (2 ♂♂, ZMUM); Andreevka env. (42.64°N 131.13°E), 25–30.VII.2014, N. Vikhrev (1 ♂, ZMUM); Anisimovka, 450 m (43.13°N 132.80°E), 21–24.VII.2018, N. Vikhrev (1 ♂, 1 ♀, ZMUM); Glazkovka env. (43.071°N 134.174°E), 9.VIII.1986, A. Ozerov (1 ♀, ZMUM); Kedrovaya Pad' Nature Reserve (43.104°N 131.512°E), 3.VIII.1964, D. Usachev (1 ♂, ZMUM); Lazo env. (43.381°N 133.895°E), 2.IX.1987, A. Ozerov (1 ♂, ZMUM); Melkovodnoye env. (42.858°N 133.616°E), 4 and 5.IX.1987, A. Ozerov (2 ♂♂, ZMUM); Sudzhinskiy [=Lazovskiy] Nature Reserve, Tachingou (43.023°N 134.136°E), 21–26.IX., 1–9.X.1948, Gussakovskiy (9 ♂♂, 4 ♀♀, ZMUM); **Sakhalin Oblast**: Sakhalin I., Novoaleksandrovsk (47.055°N 142.727°E), 12 and 23.VII.1968, Nartchuk (2 ♂♂, ZISP); Kuril Islands, Kunashir I., Cape Ivanovskiy (43.828°N 145.400°E), 25.IX.2013, Yu. Sundukov (1 ♂, ZMUM); Kuril Islands, Kunashir I., Lake Peschanoe (43.902°N 145.606°E), 20–23.VII.2011, I. Melnik (1 ♂, ZMUM); Kuril Islands, Kunashir I., River Severyanka (44.338°N 146.008°E), 16.VIII.2013, Yu. Sundukov (1 ♂, ZMUM); Kuril Islands, Shikotan I., Krabozavodskoe (43.83°N 146.75°E), 21.VIII.2012, Yu. Sundukov (1 ♂, ZMUM); Kuril Islands, Shikotan I., Tserkovnaya Bay (43.75°N 146.70°E), 8, 23–31.VIII., 10–17.IX. and 25–30.IX.2012, Yu. Sundukov (5 ♂♂, 5 ♀♀, ZMUM); **Tatarstan**: Volzhsko-Kamsky Nature Reserve, Lake Raifa (55.897°N 48.733°E), 20.VIII.2005 and 28.VII.2006, Basov (1 ♂, 1 ♀, ZMUM); **Tuva**: River Uyk (52.07°N 94.04°E), 800 m, 1–3.VII.2017, N. Vikhrev (1 ♂, ZMUM); **Tyumen' Oblast**: Kharp (66.803°N 65.809°E), 10–13.VII.2019, N. Vikhrev (1 ♀, ZMUM); near River Ai-Trom'yagan (63.20°N 72.26°E), 28.VII.2010, K. Tomkovich (1 ♂, ZMUM); River Khulga (65.150°N 62.114°E), 14–16.VII.2018, K. Tomkovich (1 ♂, ZMUM); River Lyamin (–61.73°N 71.03°E), 21.VII.2010, K. Tomkovich (1 ♀, ZMUM); Shapsha env. (61.085°N 69.458°E), 1–4.VIII.2010, K. Tomkovich (1 ♂, ZMUM); Sob' env. (67.06°N 65.46°E), 26–31.VII.2011, K. Tomkovich (1 ♂, ZMUM).

ADDITIONAL MATERIAL EXAMINED. **Japan**: Honshu, Mt. Tateyama, 2000 m, 22.VIII.1973, coll. Kamimura & Watanabe (1

paratype ♂ and 1 paratype ♀ of *Dryomyza melanacme* Kurahashi, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 5.0–11.0 mm. Body from yellow to reddish-yellow. Scapus and pedicel yellow, postpedicel from yellow to reddish-yellow. Arista bare on apical part and short haired in basal 1/4 (Fig. 1). Palpus yellow or reddish-yellow. Scutum with two brown stripes along acrostichal rows and less distinct stripes distally from dorsocentral rows behind transverse suture. Legs yellow. Wings conspicuously brownish tinged; crossveins r-m and dm-cu, also end of veins  $R_{2+3}$ ,  $R_{4+5}$  and  $M$  with dark rims (Fig. 6). Abdomen usually yellow, but tergites 4 and 5 often darkened. Genitalia as in Figs 13, 23, 34; ventromedial process longer than surstylus.

**DISTRIBUTION.** Throughout Europe and Russia; Japan, Korea; North America; a widespread and common species in forest zone.

**BIOLOGY.** Adults of *Dryomyza anilis* are common on various malodorous substrates such as cow dung, human excrements and carrion. It was reported that larvae of this species developed in fresh minced beef, rotten chicken, earthworms, craneflies, snails, caterpillars, slugs, crushed beetles and other insect remains in laboratory [Barnes, 1984; Ferrar, 1987]. *Dryomyza anilis* is known to rear from rotten fungus *Phallus* sp. [Chandler, 1978] and a dead pheasant [Smith, 1981].

Morphology of larvae is described by Smith [1981] and Barnes [1984].

#### *Dryomyza caucasica* (Ozerov, 1987)

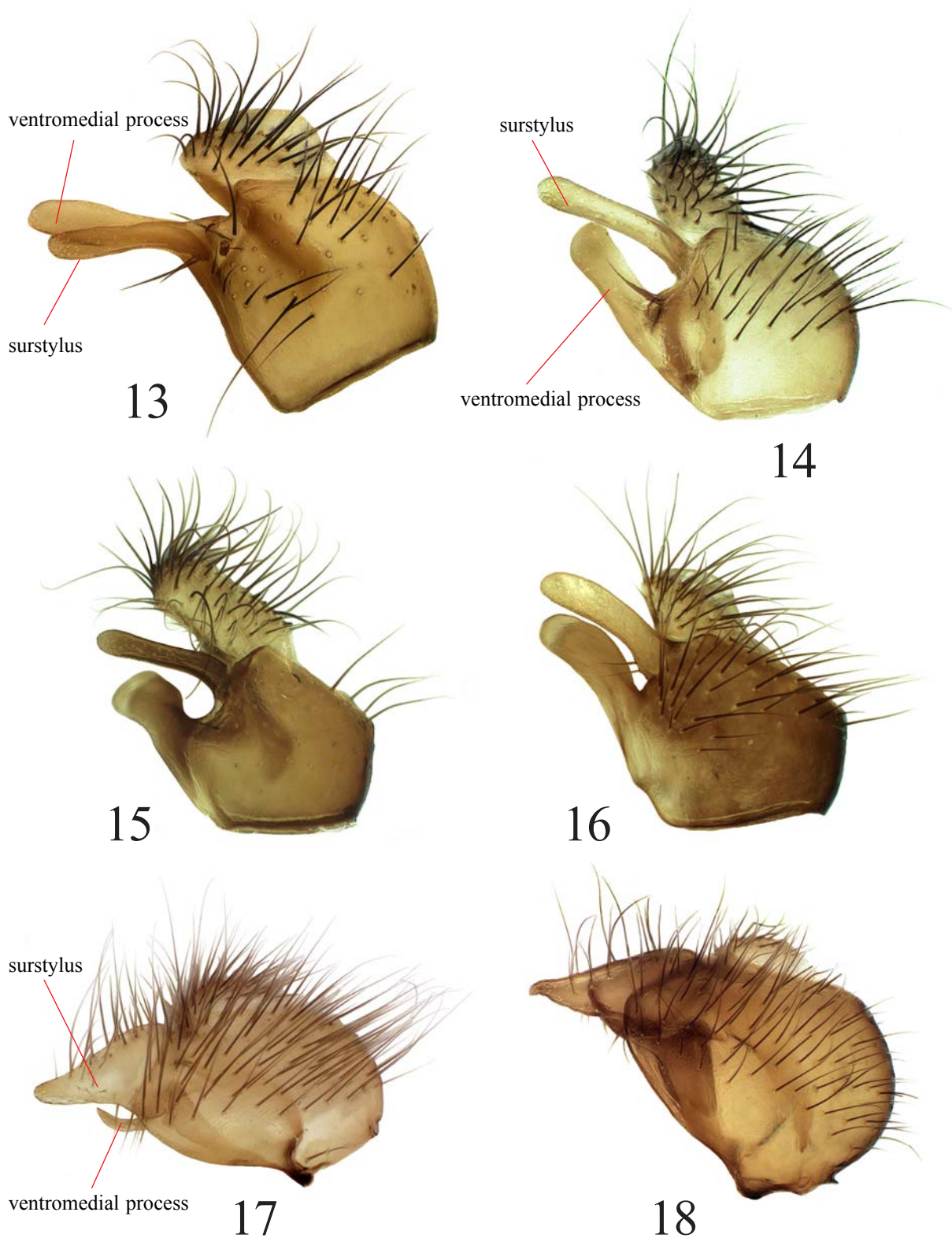
Figs 2, 14, 24, 35.

*caucasica* Ozerov, 1987: 40 (*Neuroctena*). Type-locality: Gunib (Dagestan, Russia).

**MATERIAL EXAMINED.** **Adygea**: Dakhovskaya env. (44.220°N 40.100°E), 26–29.VIII.2009, K. Tomkovich (2 ♀♀, ZMUM); **Krasnodar Krai**: Severskaya env., Ubinskaya (44.740°N 38.540°E), 9.V.1970, V. Kovalev (1 ♂, ZMUM); Sochi, Mt. Akhun (43.523°N 39.879°E), 25.IV.2008, N. Vikhrev (2 ♂♂, 1 ♀, ZMUM); Sochi/Khosta (43.580°N 39.907°E and 43.523°N 39.879°E), 15–17.V.2011, D. Gavryushin (2 ♂♂, 2 ♀♀, ZMUM); **North Ossetia – Alanina**: Buron env. (42.793°N 43.922°E), 26–30.VII.1988, 18–29.V.1989, 4–11.VII.1990, A.L. Ozerov (25 ♂♂, 13 ♀♀, ZMUM); Tsey (42.793°N 43.922°E), 4.VII.1981, S. Alekseev (1 ♂, ZMUM); same place, 16–24.IX.1989, A. Shatalkin (6 ♂♂, 6 ♀♀, ZMUM).

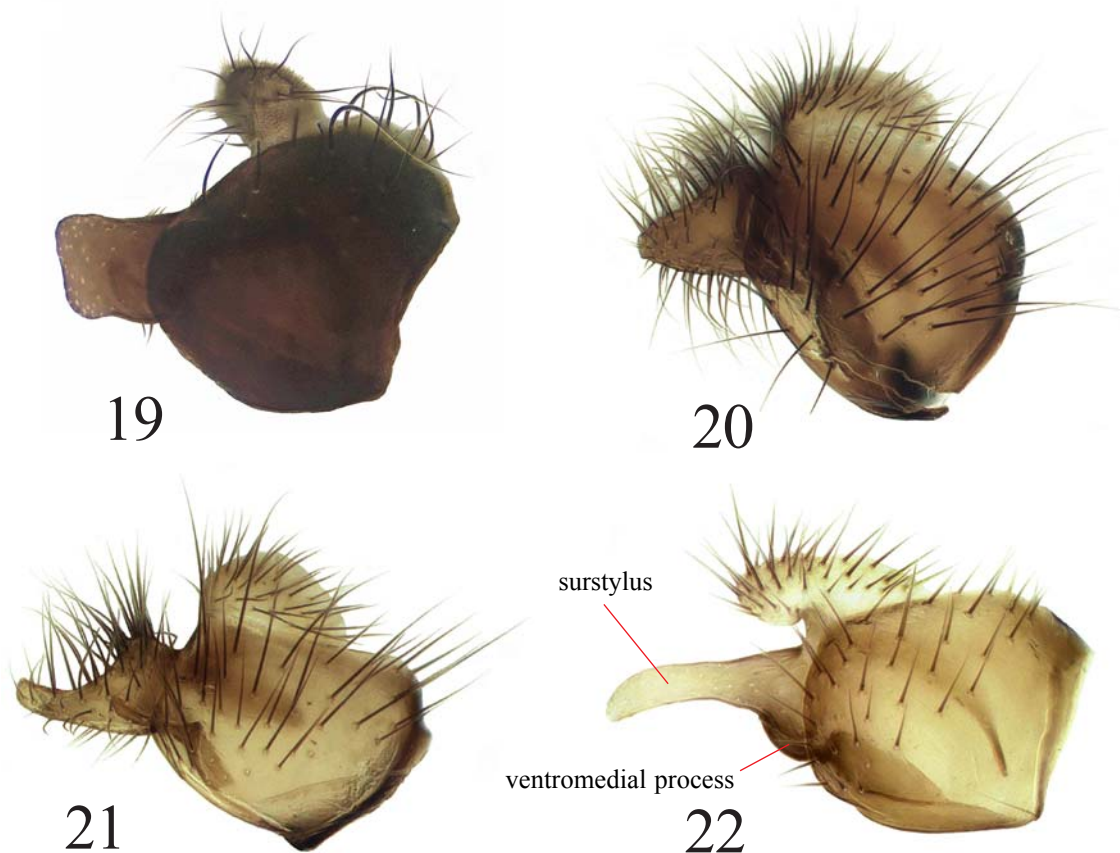
**ADDITIONAL MATERIAL EXAMINED.** **Georgia (Adjara)**: Chakvi gorge, 20.V.1971, V. Kovalev (1 paratype ♀, ZMUM); **Azerbaijan**: Guba [= Daðli] (41.370°N 48.498°E), soil traps, X.2011, N. Snegovaya (1 ♂, 4 ♀♀, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 4.6–8.2 mm. Body yellow or reddish-yellow; female scutum often blackish. Anepisternum microtomentose on all surface, without black setulae. Antenna from reddish-yellow to almost blackish. Arista bare on apical part and short haired on basal 1/4 (Fig. 2). Palpus from reddish-yellow on basal half and blackish on apical part to completely black (Fig. 2). Legs yellow, all tarsi usually blackish. Wings conspicuously brownish tinged; crossveins r-m and dm-cu without dark rims. Abdomen usually yellow, but tergites 4 and 5 often darkened; female tergites along posterior margin usually black-



Figs 13–18. Genitalia of Dryomyzidae, lateral view: 13 — *Dryomyza anilis* Fallén; 14 — *Dryomyza caucasica* (Ozerov); 15 — *Dryomyza ecalcarata* Kurahashi; 16 — *Dryomyza formosa* (Wiedemann); 17 — *Dryope decrepita* (Zetterstedt); 18 — *Dryope flaveola* (Fabricius).

Рис. 13–18. Гениталии Dryomyzidae, сбоку: 13 — *Dryomyza anilis* Fallén; 14 — *Dryomyza caucasica* (Ozerov); 15 — *Dryomyza ecalcarata* Kurahashi; 16 — *Dryomyza formosa* (Wiedemann); 17 — *Dryope decrepita* (Zetterstedt); 18 — *Dryope flaveola* (Fabricius).



Figs 19–22. Genitalia of Dryomyzidae, lateral view: 19 — *Oedoparena minor* Suwa; 20 — *Paradryomyza setosa* (Bigot); 21 — *Paradryomyza spinigera* Ozerov; 22 — *Pseudoneuroctena senilis* (Zetterstedt). 19 — after Ozerov & Krivosheina, 2021, fig. 7.

Рис. 19–22. Гениталии Dryomyzidae, сбоку: 19 — *Oedoparena minor* Suwa; 20 — *Paradryomyza setosa* (Bigot); 21 — *Paradryomyza spinigera* Ozerov; 22 — *Pseudoneuroctena senilis* (Zetterstedt). 19 — по Ozerov & Krivosheina, 2021, fig. 7.

ish. Genitalia as in Figs 14, 24, 35; ventromedial process shorter than surstylus.

**DISTRIBUTION.** Foothills and hills of Caucasus.

**BIOLOGY.** Adults of *Dryomyza caucasica* are common on human excrements. Larvae develop in this substrate.

*Dryomyza ecalcarata* Kurahashi, 1981  
Figs 15, 25, 36.

*ecalcarata* Kurahashi, 1981: 442 (*Dryomyza*). Type-locality: Gokayama (Honshu Island, Japan).

**MATERIAL EXAMINED.** **Sakhalin Oblast:** Kuril Islands, Kunashir I., Reserve Kuril'skiy, caldera of the Golovnin volcano (43.841°N 145.509°E), 3–5.VII.2014, A. Gomyranov (2 ♂♂, ZMUM); Kuril Islands, Shikotan I., Tserkovnaya Bay (43.75°N 146.70°E), 27–31.VIII., 10–17.IX. and 25–30.IX.2012, Yu. Sundukov (1 ♂, 7 ♀♀, ZMUM); Kuril Islands, Kunashir I., Tretyakovo (43.991°N 145.655°E), 13–22.IX.2009, I. Melnik (1 ♂, 1 ♀, ZMUM); same place, 8–15.VII.2014, A. Gomyranov (1 ♂, 3 ♀♀, ZMUM); same place, 12.VII.2014, T.V. Galinskaya (7 ♂♂, 2 ♀♀, ZMUM); Kuril Islands, Kunashir I., Cape Ivanovskiy (43.828°N 145.400°E), 25.IX.2013, Yu. Sundukov (1 ♂, 2 ♀♀, ZMUM); Kuril Islands, Kunashir I., Cape Ivanovskiy, stream Bystryi (43.787°N 145.422°E), 27.IX.2013, Yu. Sundukov (1 ♂, ZMUM); Kunashir I., environs of the Mendelev volcano (43.961°N 145.729°E), 8.VII.1985, S. Churkin (1 ♂, ZMUM); Kuril Islands, Kunashir I., caldera of the Golovnin volcano (43.843°N 145.505°E),

12–24.VII.2008, I. Melnik (2 ♀♀, ZMUM); Kuril Islands, Shikotan I., Malokuril'sk (43.869°N 146.8297°E), 24.IX.1968, Gorodkov (7 ♂♂, 6 ♀♀, ZISP and ZMUM).

**ADDITIONAL MATERIAL EXAMINED.** **Japan:** Honshu, Mt. Iozen, Kaga Ishikawa, 14 and 16.V.1969, coll. H. Kurahashi (1 paratype ♂, 1 paratype ♀, ZMUM); Honshu, Mt. Tateyama, 1500 m, 16.XI.1986, coll. H. Kurahashi (6 ♂♂, 3 ♀♀, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 6.8–8.9 mm. Body yellow or reddish-yellow. Scutum usually with brown stripes along acrostichal rows and less distinct stripes distally from dorsocentral rows. Anepisternum microtomentose in posterior half and shining anteriorly, covered with rare black setulae. Antenna from reddish-yellow to almost blackish. Arista bare on apical part and short haired on basal 1/4. Palpus yellow. Legs yellow, all tarsi usually blackish. Wings conspicuously brownish tinged; crossveins r-m and dm-cu without dark rims. Abdominal tergites usually mostly blackish. Genitalia as in Figs 15, 25, 36; ventromedial process shorter than surstylus.

**DISTRIBUTION.** **Russia:** Sakhalin Oblast; Japan.

*Dryomyza formosa* (Wiedemann, 1830)  
Figs 4, 16, 26, 37.

*formosa* Wiedemann, 1830: 447 (*Scatophaga*). Type-locality: Japan.

*gigas* Snellen von Vollenhoven, 1863: 18 (*Dryomyza*). Type-locality: Japan.

**MATERIAL EXAMINED.** **Khabarovsk Krai:** Khabarovsk (48.426°N 135.118°E), 4.VII.1931, V. Pereleshina (1 ♂, ZMUM); **Primorsky Krai:** 40 km SO of Ussuriysk [=Kamenushka] (43.634°N 132.222°E), 27.VII., 1, 10 and 26.VIII.1983, 8.IX.1984, 4.VIII.1987, A. Ozerov (8 ♂♂, 4 ♀♀, ZMUM); same place, 1.IX.1990, A. Antropov (1 ♀, ZMUM); same place, 23.VII.1983, A. Shatalkin (1 ♀, ZMUM); same place, 22–24.VI.2014, N. Vikhrev (1 ♀, ZMUM); Anisimovka (43.13°N 132.80°E), 21–24.VI.2018, N. Vikhrev (1 ♀, ZMUM); Iman [=Dal'nerechinsk] (45.930°N 133.734°E), 1947, Grochovskaya (1 ♀, ZMUM); Kedrovaya Pad' Nature Reserve (43.104°N 131.512°E), 1.IX.1987, D. Shcherbakov (1 ♀, ZMUM); Sikhote-Alin Nature Reserve, 11–20.VI.1929, N. Filippov (3 ♂♂, ZMUM); same place, 22.VIII.1978, D. Shcherbakov (2 ♂♂, ZMUM); Sudzhukhinsky [=Lazovsky] Nature Reserve, Tachingou (43.023°N 134.136°E), 18–25.IX., 1–9.X.1948, Gussakovskiy (10 ♂♂, 7 ♀♀, ZMUM); **Sakhalin Oblast:** Kunashir I., Tret'yakovo (43.989°N 145.644°E), 12.VII.2014, T.V. Galinskaya (1 ♂, ZMUM); Kuril Islands, Kunashir I., cordon Filatovsky (44.193°N 146.019°E), 31.VIII.–2.IX.2009, I. Melnik (1 ♂, ZMUM);

**DIAGNOSTIC DESCRIPTION.** Body-length 11.8–20.0 mm. Body reddish-yellow in ground colour. Antenna from yellow to reddish-yellow. Arista bare on apical part and plumose in basal 1/2 (Fig. 2). Palpus yellow or reddish-yellow. Scutum with brown stripe between acrostichal rows and less distinct stripes distally from dorso-central rows. Fore leg reddish-yellow, tarsus usually brownish. Mid and hind legs bicolored: coxae, trochanters, femora in basal half, apex of tibiae and usually tarsi brownish, the rest parts yellow. Wings conspicuously brownish tinged; with dark brown or blackish spot around crossveins r-m and dm-cu and in cell *sc*, also with dark rims near apex of veins  $R_{2+3}$ ,  $R_{4+5}$  and *M*. Abdomen from yellow to black. Genitalia as in Figs 16, 26, 37; ventromedial process shorter than surstylus.

**DISTRIBUTION.** South of Russian Far East; China, India, Japan, Korea, Vietnam [Mathis & Sueyoshi, 2011].

**BIOLOGY.** Adults of *Dryomyza formosa* were common in August–September on human excrements; larvae developed in this substrate [Petrova, 1968]. Besides larvae were found in decaying corpse of large vertebrate animal [Ozerov, 1987].

### Genus *Dryope* Robineau-Desvoidy, 1830

*Dryope* Robineau-Desvoidy, 1830: 618. Gender: feminine. Type species: *Dryope communis* Robineau-Desvoidy [= *Musca flaveola* Fabricius, 1794], by designation of Coquillett, 1910.

**DIAGNOSIS.** Head with a pair of well developed outer vertical setae. Scutum with 2 pairs of dorsocentral setae; acrostichal setae present. Vein  $R_1$  bare on whole length on dorsal surface. Scutellum with two pairs of setae. Surstylus triangular: strongly broadened at base and tapering to apex, covered with hairs; ventromedial process thin, usually curved (Figs 17, 18, 27, 28).

Two species of this genus are recorded in Russia [Stackelberg, 1958, 1970; Ozerov, 1987, 1999].

### KEY TO THE SPECIES OF THE GENUS *DRYOPE*

1. Crossveins r-m and dm-cu with dark rims. Genitalia as in Figs 17, 27, 38 ..... *Dryope decrepita* Zetterstedt

- Wing hyaline or slightly tinged with pale brown, lacking dark markings. Genitalia as in Figs 18, 28, 39 ..... *Dryope flaveola* (Fabricius)

### *Dryope decrepita* (Zetterstedt, 1838) Figs 17, 27, 38.

*Dryomyza decrepita* Zetterstedt, 1838: 737. Type-localities: “Lapponia–Scania rar.”

**MATERIAL EXAMINED.** **Amur Oblast:** Zeysky Nature Reserve, cordon “52 km” (54.087°N 126.871°E), 25.VII.1979, 13–14.VIII. and 8.IX.1981, A. Ozerov, A. Shatalkin (3 ♂♂, 2 ♀♀, ZMUM); **Chukotka:** River Anadyr' (64.833°N 175.950°E), 8.VIII.2013, O.A. Khruleva (2 ♂♂, 2 ♀♀, ZMUM); **Karelia:** Kartesh (66.33°N 33.64°E), 20.VII.1975, Gorodkov (1 ♂, ZISP); **Primorsky env.** (66.552°N 33.100°E), 4.VII.2010, A.L. Ozerov (2 ♂♂, ZMUM); **Komi:** Seida (67.064°N 63.086°E), 2–4.VIII.2011, K. Tomkovich (1 ♂, ZMUM); **Murmansk Oblast:** Murmansk env. (68.95°N 33.13°E), 9–13.VIII.2010, N. Vikhrev (1 ♂, ZMUM); Monchegorsk (67.937°N 32.891°E), 8–16.VII.2009, M. Kozlov (1 ♂, ZMUM); River Kola (68.848°N 33.052°E), 20.VII.2011, A. Ozerov (1 ♂, ZMUM); **North Ossetia – Alania:** Buron env. (42.793°N 43.922°E), 4 and 6.VII.1990, A.L. Ozerov (2 ♂♂, 4 ♀♀, ZMUM); **Tyumen' Oblast:** (63.19°N 72.22°E, 63.20°N 72.26°E), 27–28.VII.2010, K. Tomkovich (2 ♂♂, ZMUM); River Khulga (65.150°N 62.114°E), 14–16.VII.2018, K. Tomkovich (1 ♂, 1 ♀, ZMUM); Salekhard (66.6°N 66.8°E), 16–19.VII.2019, N. Vikhrev (2 ♂♂, ZMUM).

**REMARK.** Previously this species was also recorded in Russia from Bashkiria, Leningrad Oblast, Moscow Oblast, Kamchatka Krai, and Zabaikalsky Krai [Ozerov, 1987].

**DIAGNOSTIC DESCRIPTION.** Body-length 5.0–8.0 mm. Body yellow or reddish-yellow; scutum with narrow brown stripes along acrostichal rows and less distinct stripes distally from dorsocentral rows behind transverse suture. Wings weakly greyish tinged; crossveins r-m and dm-cu with weakly brownish rims. In male black katepisternal setae along upper margin weak, not different from katepisternal hairs. Genitalia as in Figs 17, 27, 38.

**DISTRIBUTION.** Throughout Europe and Asia from Great Britain east to Khabarovsk Krai of Russia; North America.

### *Dryope flaveola* (Fabricius, 1794) Figs 18, 28, 39.

*flaveola* Fabricius, 1794: 343 (*Musca*). Type-locality: Hafnia [=Copenhagen] (Denmark).

*vetula* Fallén, 1820: 16 (*Dryomyza*). Type-localities: Be-ckaskog, Esperöd (Sweden).

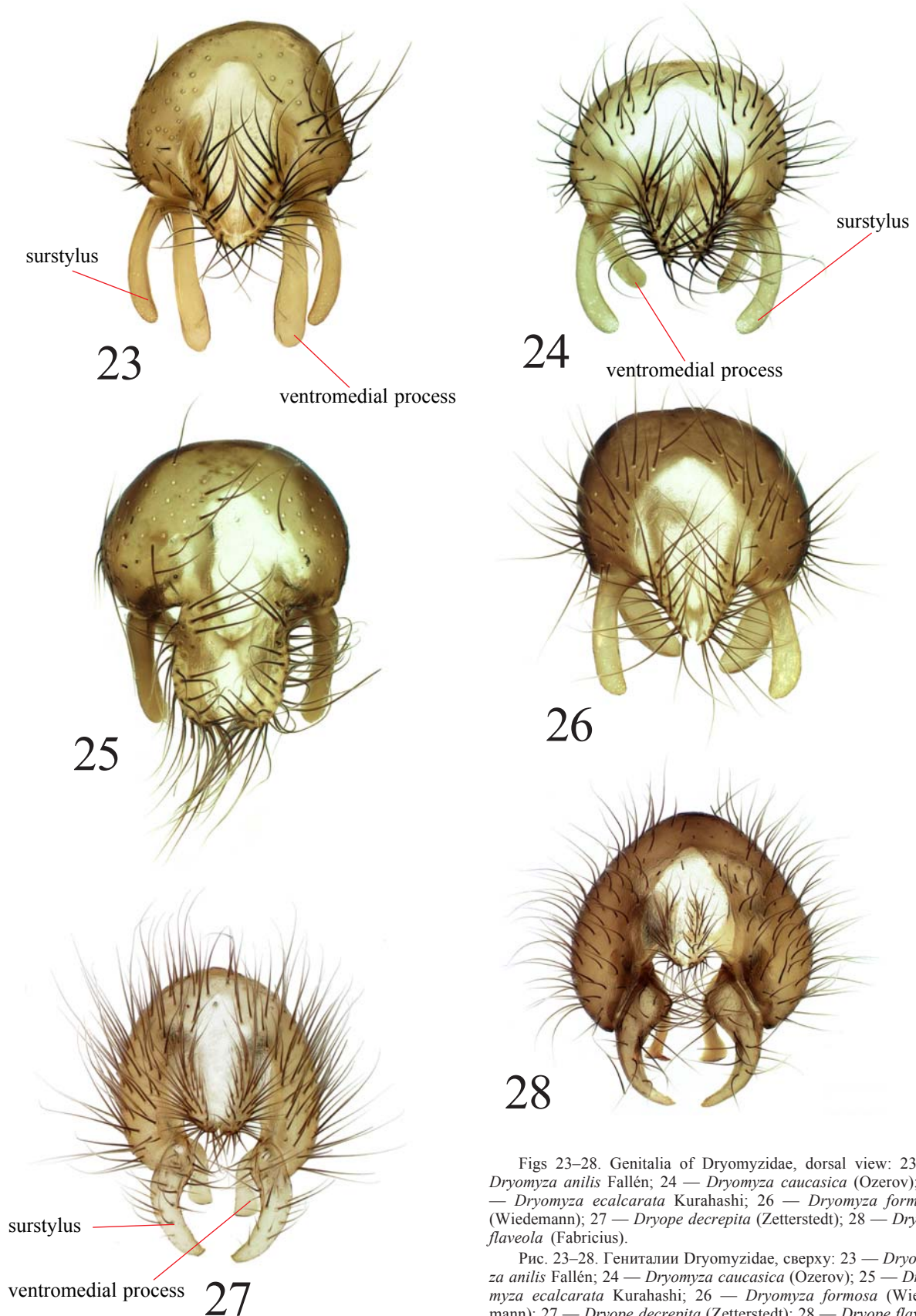
*communis* Robineau-Desvoidy, 1830: 619 (*Dryope*). Type-locality: not given (?France).

*mollis* Haliday, 1833: 167 (*Dryomyza*). Type-locality: Holywood (Ireland).

*zawadskii* Schummel, 1834: 740 (*Dryomyza*). Type-locality: not given.

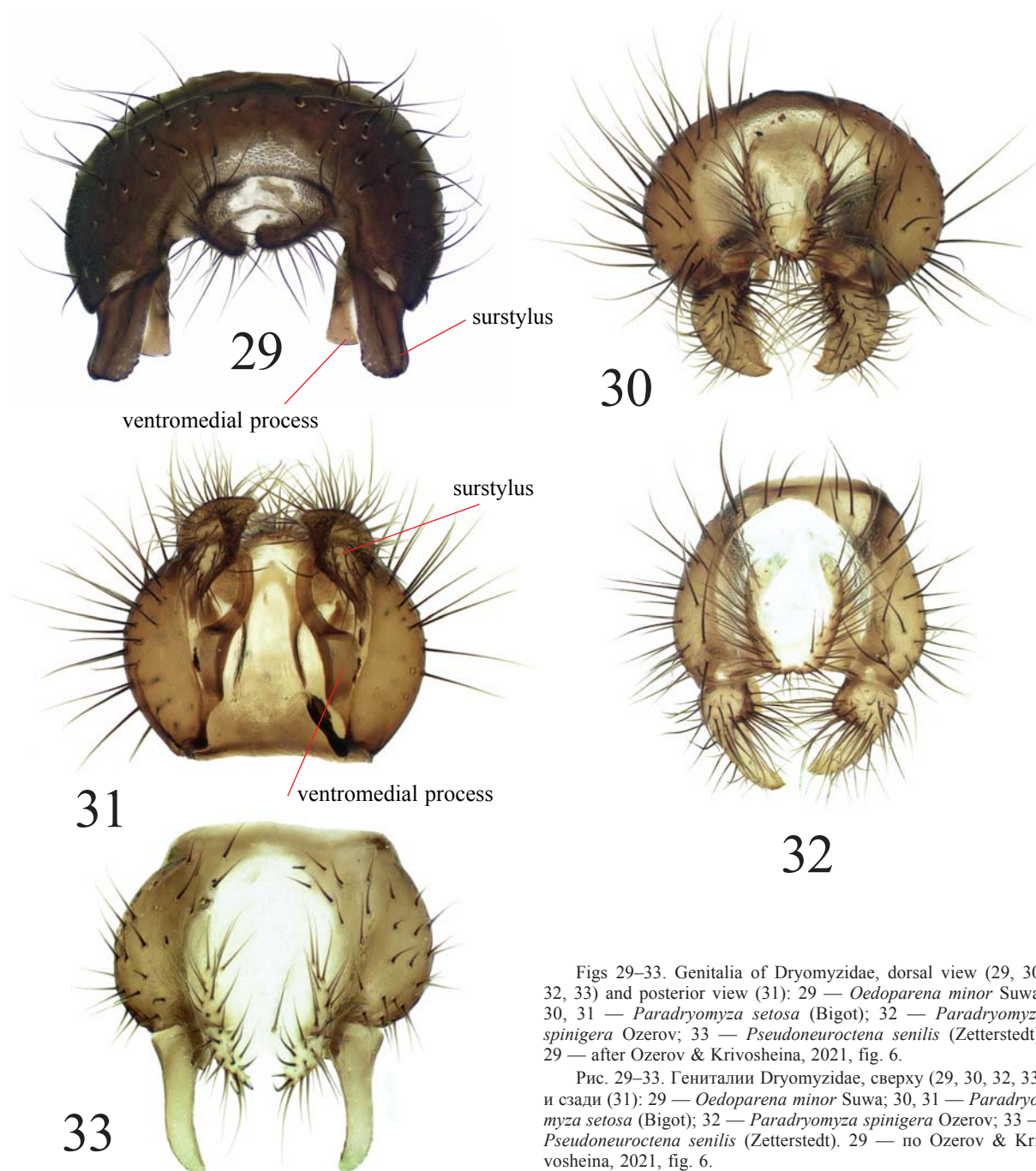
*fuscicornis* Meigen, 1838: 343 (*Dryomyza*). Type-locality: “Baierm”.

**MATERIAL EXAMINED.** **Adygea:** Lagonaki (44.107°N 40.020°E), 1450 m, 15–17.VI.2009, K. Tomkovich (1 ♂, ZMUM); **Amur Oblast:** Zeysky Nature Reserve (54.087°N 126.871°E), 12.VIII.1979, A. Shatalkin (1 ♀, ZMUM); **Crimea:** Achan-Su (44.49°N 34.10°E), 30.IX.2015, N. Vikhrev (1 ♂, ZMUM); Chatyr-Dag (44.766°N 34.291°E), 25.V.1963, Gorodkov (1 ♂, 1 ♀, ZISP); Road Alushta–Rybachie (44.7–8°N 34.4–6°E), 18–25.IV.2014, N. Vikhrev (1 ♂, 2 ♀♀, ZMUM); **Kaliningrad Oblast:** Kurshskaya Kosa (55.154°N 20.857°E), without data, V. Kolyda



Figs 23–28. Genitalia of Dryomyzidae, dorsal view: 23 — *Dryomyza anilis* Fallén; 24 — *Dryomyza caucasica* (Ozerov); 25 — *Dryomyza ecalcarata* Kurahashi; 26 — *Dryomyza formosa* (Wiedemann); 27 — *Dryope decrepita* (Zetterstedt); 28 — *Dryope flaveola* (Fabricius).

Рис. 23–28. Гениталии Dryomyzidae, сверху: 23 — *Dryomyza anilis* Fallén; 24 — *Dryomyza caucasica* (Ozerov); 25 — *Dryomyza ecalcarata* Kurahashi; 26 — *Dryomyza formosa* (Wiedemann); 27 — *Dryope decrepita* (Zetterstedt); 28 — *Dryope flaveola* (Fabricius).



Figs 29–33. Genitalia of Dryomyzidae, dorsal view (29, 30, 32, 33) and posterior view (31): 29 — *Oedoparena minor* Suwa; 30, 31 — *Paradryomyza setosa* (Bigot); 32 — *Paradryomyza spinigera* Ozerov; 33 — *Pseudoneuroctena senilis* (Zetterstedt). 29 — after Ozerov & Krivosheina, 2021, fig. 6.

Рис. 29–33. Гениталии Dryomyzidae, сверху (29, 30, 32, 33) и сзади (31): 29 — *Oedoparena minor* Suwa; 30, 31 — *Paradryomyza setosa* (Bigot); 32 — *Paradryomyza spinigera* Ozerov; 33 — *Pseudoneuroctena senilis* (Zetterstedt). 29 — по Ozerov & Krivosheina, 2021, fig. 6.

(1 ♂, ZMUM); **Krasnodar Krai:** Psekhako Mt. (43.691°N 40.366°E), 14–18.VI.2008, K. Tomkovich (2 ♂♂, 3 ♀♀, ZMUM); Sochi, Mt. Akhun (43.523°N 39.879°E), 5.III.2006 and 22.VI.2006, N. Vikhrev (3 ♂♂, 1 ♀, ZMUM); Sochi/Khosta (43.523°N 39.879°E), 3–9 and 18.V.2011, D. Gavryushin, N. Vikhrev (2 ♂♂, 1 ♀, ZMUM); **Murmansk Oblast:** Murmansk env. (68.9°N 33.0°E), 10–15.VIII.2010, N. Vikhrev (1 ♂, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 4.8–9.5 mm. Body and legs from yellow to dark brown or blackish. Wings weakly brownish tinged, with cross-veins r-m and dm-cu without dark rims. In male black katepisternal setae along upper margin strong, well

different from katepisternal hairs. Genitalia as in Figs 18, 28, 39.

**DISTRIBUTION.** This species was registered in Europe only [Mathis, Sueyoshi, 2011]; for Asiatic part of Palearctic (Amur Oblast) it is registered for the first time.

**BIOLOGY.** *Dryope flaveola* larvae were reared from cow dung [Hinton, 1960]. Adults from Caucasus was collected on human excrements (N. Vikhev, pers. comm. 2006).

Genus *Oedoparena* Curran, 1934

*Oedoparena* Curran, 1934: 382. Gender: feminine. Type species: *Oedoparena glauca* Coquillett, by original designation.

**DIAGNOSIS.** Head (Fig. 3) with a pair of outer vertical setae lacking or reduced. Arista bare. Proepisternum, except seta near lower margin, densely setose, setae fine. Scutum with 5–7 pairs of dorsocentral setae, no postpronotals, acrostichals not differentiated from the other long hairs on scutum, and they don't form rows. Scutellum with three pairs of setae. Wing tinged with brown, lacking dark markings; vein  $R_1$  bare on dorsal surface. Surstylus subrectangular; ventromedial process not exposed in lateral view (Figs 19); distiphallus angulate, ventral surface conspicuously setulose (Fig. 40).

A single species — *Oedoparena minor* Suwa, 1981 is recorded in Russia [Ozerov, Krivosheina, 2021].

*Oedoparena minor* Suwa, 1981

Figs 3, 9, 19, 29, 40.

*minor* Suwa, 1981: 30 (*Oedoparena*). Type locality: Asari Beach, Otaru-shi, Hokkaido, Japan.

**MATERIAL EXAMINED.** **Sakhalin Oblast:** Kuril Islands, Shikotan Island, cape Krai Sveta (43.846°N 146.913°E), 22.VI.1968, 2 ♂♂, 2 ♀♀, E. Nartshuk (ZISP and ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 3.8–4.1 mm. Body blackish in ground colour, greyish and slightly brownish dusted. Head (Fig. 3) with outer vertical setae absent. Antenna blackish, grey dusted. Postpedicel round in lateral view. Arista bare (Fig. 3). Palpus blackish, grey dusted. Thorax with acrostichals not differentiated from the other long hairs on scutum, and they don't form rows; dorsocentrals (1–2)+(4–5). Proepisternum covered with setulae and with seta near lower margin. Anepisternum and katepisternum densely setose. Scutellum (Fig. 9) with three pairs of setae: basal scutellar, lateral scutellar and apical scutellar. Legs blackish, greyish or brownish dusted. Wing (Fig. 7) tinged with brown, lacking dark markings. Abdomen blackish, greyish and brownish dusted, with no strong setae. Surstylus subrectangular; ventromedial process not exposed in lateral view (Fig. 19); distiphallus angulate, ventral surface conspicuously setulose (Fig. 40).

**DISTRIBUTION.** **Russia:** Sakhalin Oblast; Japan.

**BIOLOGY.** *Oedoparena minor* were reared from puparia found in empty tests of a barnacle [Suwa, 1981].

Genus *Paradryomyza* Ozerov, 1987

*Paradryomyza* Ozerov, 1987: 38. Gender: feminine. Type species: *Odontomera setosa* Bigot, by original designation.

**DIAGNOSIS.** Head with a pair of well developed outer vertical setae. Arista short haired on whole length (Fig. 5). Scutum with 2 pairs of dorsocentral setae; acrostichal setae absent. Scutellum with two pairs of setae. Wing tinged with brownish, lacking dark markings. Vein  $R_1$  setose in apical half dorsally and bare in

basal half. Hind femur bearing two rows of spinules apically on ventral surface (Figs 10, 11). Female abdominal tergites 6 and 7 spinulose (Fig. 12). Surstylus triangular: strongly broadened at base and tapering to apex, covered with hairs; ventromedial process thin and curved (Figs 20, 21, 30–32).

Two species of this genus are recorded in Russia [Ozerov, 1987, 1999].

KEY TO THE SPECIES OF THE GENUS *PARADRYOMYZA*

1. Palpus yellow completely. Katepisternum covered with thick black hairs. Hind femur with thin spinules apically on ventral surface (Fig. 11). Female abdominal tergite 7 spinulose, spines thick and stout (Fig. 12). Genitalia as in Figs 20, 30, 31, 41 ..... *P. setosa* Bigot
- Palpus almost completely dark brown or black. Katepisternum covered with rare light hairs. Hind femur with stout spinules apically on ventral surface (Fig. 10). Female abdominal tergite 7 spinulose, spines rare and thin. Genitalia as in Figs 21, 32, 42. *P. spinigera* Ozerov

*Paradryomyza setosa* (Bigot, 1886)

Figs 5, 11, 12, 20, 30, 31, 41.

*setosa* Bigot, 1886: 386 (*Odontomera*?). Type-locality: Washington, USA.

**MATERIAL EXAMINED.** **Altai:** Kamdyt (49°58.7'–59.14°N 86°33'–34.9°E), 2150–2514 m, 28.VI.–4.VII.2007, O. Kosterin (1 ♀, ZMUM); Seminsky pass (51.06°N 85.59°E), 1650 m, 27–30.VI.2016, N. Vikhrev (1 ♂, ZMUM); **Amur Oblast:** Zeysky Nature Reserve, cordon “52 km” (54.087°N 126.871°E), 24.VII.1981 and 28.VIII.1982, A. Ozerov, A. Shatalkin (1 ♂, 1 ♀, ZMUM); **Khabarovsk Krai:** Bureya Nature Reserve, cordon “Strelka”, 13.IX.2006, A.B. Ryvkin (1 ♂, ZMUM); **Krasnoyarsk Krai:** Baykit (61.68°N 96.38°E), 26.VIII.1972, Gorodkov (1 ♂, ZISP); Buyba Station (52.719°N 93.400°E), 31.VII.1963, Grunin (1 ♂, 1 ♀, ZISP); **Magadan Oblast:** River Donyshko (60.41°N 151.52°E), 17.VII.2014, N. Vikhrev (2 ♂♂, 1 ♀, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 5.4–6.6 mm. Frons yellow. Scapus and pedicel yellow, postpedicel blackish. Palpus yellow completely. Katepisternum covered with thick black hairs. Thorax yellow. Scutum with pattern of indistinct brown stripes. Legs yellow, only apexes of all femora usually brownish. Hind femur with thin spinules apically on ventral surface (Fig. 11). Female abdominal tergite 7 spinulose, spines thick and stout (Fig. 12). Genitalia as in Figs 20, 30, 31, 41.

**DISTRIBUTION.** **Russia:** Siberia and Far East; North America; everywhere is a rather rare species.

*Paradryomyza spinigera* Ozerov, 1987

Figs 10, 21, 32, 42.

*spinigera* Ozerov, 1987: 39 (*Paradryomyza*). Type-locality: Zeya Town (Amur Oblast, Russia).

**MATERIAL EXAMINED.** **Amur Oblast:** Zeysky Nature Reserve, cordon “52 km” (54.087°N 126.871°E) and cordon “34 km” (53.989°N 127.073°E), 29.VII.1979, 1, 4, 12 and 27.VIII.1979, 7–10, 21, 26 and 29.VII.1981, 18.VIII.1981, 7, 11 and 14.IX.1981, 16.VI.1982, 10.VII.1982, M. Krivosheina, A. Ozerov, A. Shatalkin (holotype ♂, 12 paratypes ♂♂, 15 paratypes ♀♀, ZMUM); same place, 24 and 27.VI., 3.VII. and 27.VIII.1978, A. Shatalkin (2



Figs 34–43. Aedeagus of Dryomyzidae, lateral view: 34 — *Dryomyza anilis* Fallén; 35 — *Dryomyza caucasica* (Ozerov); 36 — *Dryomyza ecalcarata* Kurahashi; 37 — *Dryomyza formosa* (Wiedemann); 38 — *Dryope decrepita* (Zetterstedt); 39 — *Dryope flaveola* (Fabricius); 40 — *Oedoparena minor* Suwa; 41 — *Paradryomyza setosa* (Bigot); 42 — *Paradryomyza spinigera* Ozerov; 43 — *Pseudoneuroctena senilis* (Zetterstedt). 40 — after Ozerov & Krivosheina, 2021, fig. 8.

Рис. 34–43. Эдеагус Dryomyzidae, сбоку: 34 — *Dryomyza anilis* Fallén; 35 — *Dryomyza caucasica* (Ozerov); 36 — *Dryomyza ecalcarata* Kurahashi; 37 — *Dryomyza formosa* (Wiedemann); 38 — *Dryope decrepita* (Zetterstedt); 39 — *Dryope flaveola* (Fabricius); 40 — *Oedoparena minor* Suwa; 41 — *Paradryomyza setosa* (Bigot); 42 — *Paradryomyza spinigera* Ozerov; 43 — *Pseudoneuroctena senilis* (Zetterstedt). 40 — по Ozerov & Krivosheina, 2021, fig. 8.

♂♂, 2 ♀♀, ZMUM); same place, 24.VII.1981, A. Ozerov (1 ♀, ZMUM); **Kamchatka Krai**: Lake Chazhma (55.025°N 161.859°E), 10.VIII.1987, L.E. Lobkova (1 ♀, ZMUM); **Karelia**: Primorskiy env. (66.552°N 33.100°E), 4.VII.2010, A.L. Ozerov (1 ♀, ZMUM); **Krasnoyarsk Krai**: Kryuchkovo Station (56.096°N 92.109°E), 14–23.VII.2009, K. Tomkovich (1 ♂, ZMUM); **Primorsky Krai**: Kamenushka (43.634°N 132.222°E), 14.VI.1984, 15.VIII.1987, A. Shatalkin (1 ♂, 1 ♀, ZMUM); Lazovsky Nature Reserve, cordon “Amerika” (43.283°N 134.044°E), 11–16.VII.1986, A.L. Ozerov (3 ♂♂, 3 ♀♀, ZMUM); **Sakhalin Oblast**: Kuril Islands, Kunashir I., environs of the Mendelev volcano (43.961°N 145.729°E), 3.IX.1968, Gorodkov (1 ♂, ZISP); Kuril Islands, Kunashir I., Tretyakovo env. (43.991°N 145.655°E), 25–29.VIII. and 13–22.IX.2009, I. Melnik (2 ♂♂, 2 ♀♀, ZMUM); **Tyumen’ Oblast**: River Khulga (65.105°N 62.217°E), 9–17.VII.2018, K. Tomkovich (1 ♂, 1 ♀, ZMUM); Vogulka (63.934–37°N 64.508–11°E), 20–21.VII.2018, K. Tomkovich (1 ♀, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 4.2–7.9 mm. Frons usually with black or blackish spot in front of orbital seta. Palpus almost completely dark brown or black. Katepisternum covered with rare light hairs. Legs yellow in ground colour. Hind femur with stout spinules apically on ventral surface (Fig. 10). Female abdominal tergite 7 spinulose, spines rare and thin. Genitalia as in Figs 21, 32, 42.

**DISTRIBUTION.** **Russia**: forest zone from Leninograd Oblast and Karelia east to Sakhalin Oblast; widely distributed, but is not a common species.

**BIOLOGY.** Adults of *Paradryomyza spinigera* were common on human excrements; some specimens were collected near corpses of small rodents [Ozerov, 1987].

#### Genus *Pseudoneuroctena* Ozerov, 1987

*Pseudoneuroctena* Ozerov, 1987: 41. Gender: feminine. Type species: *Dryomyza senilis* Zetterstedt, by original designation.

**DIAGNOSIS.** Head with a pair of well developed outer vertical setae. Arista short haired on whole length. Scutum with 3 pairs of dorsocentral setae; acrostichal setae present. Vein  $R_1$  with several setulae on dorsal surface apically. Scutellum with two pairs of setae. Surstylus rod-like slightly broadened basally; ventromedial process thin, rod-like.

*Pseudoneuroctena* is a monotypic genus with a single species *P. senilis* (Zetterstedt, 1846), registered in Russia by Ozerov [1987, 1999].

#### *Pseudoneuroctena senilis* (Zetterstedt, 1846)

Figs 22, 33, 43.

*senilis* Zetterstedt, 1846: 2087 (as var. of *Musca flaveola* Fabricius). Type-localities: “In Sveciae borealis & Lapponiae silvaticis”.

**MATERIAL EXAMINED.** **Altai**: Seminsky pass (51.06°N 85.59°E), 1650 m, 27–30.VI.2016, N. Vikhrev (1 ♂, ZMUM); **Amur Oblast**: Zeysky Nature Reserve (54.087°N 126.871°E), 25.VII.1979, A.L. Ozerov (1 ♂, ZMUM); **Kamchatka Krai**: Uzon (54.500°N 159.956°E), 3.VIII.1974, Stenchenko (1 ♂, ZMUM); **Komi**: Uchta (63.560°N 53.725°E), 3.VIII.1976, Gorodkov (1 ♂, ZISP); **Krasnoyarsk Krai**: Buyba Station (52.719°N 93.400°E), 8 and 31.VIII.1963, Grunin (2 ♂♂, ZISP); Dudinka (69.404°N 86.182°E), 27–29.VII.2011, N. Vikhrev (1 ♂, ZMUM); Ergaki Nature Park (52.84°N 93.25°E), 1450 m, 27–29.VI.2017, N. Vikhrev (1 ♂, ZMUM).

**ADDITIONAL MATERIAL EXAMINED.** **Japan**: Honshu, Mt. Tateyama, 1500 m, 16.XI.1986, coll. H. Kurahashi (1 ♀, ZMUM).

**DIAGNOSTIC DESCRIPTION.** Body-length 6.8–7.5 mm. Body yellow or reddish-yellow. Scapus and pedicel yellow, postpedicel from yellow to almost blackish. Palpus yellow. Legs yellow, all tarsi usually blackish. Wings conspicuously brownish tinged; crossveins r-m and dm-cu without dark rims. Abdomen yellow, but tergites 4 and 5 often darkened on basal half. Genitalia as in Figs 22, 33, 43.

**DISTRIBUTION.** **Russia**: Altai, Amur Oblast, Kamchatka Krai, Komi, Krasnoyarsk Krai; Finland, Sweden; Japan, Korea; North America [Mathis, Sueyoshi, 2011].

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